

In the Claims

21. (Currently amended) An expression cassette for stably transforming a plant chloroplast which comprises, operably joined, a heterologous DNA sequence coding for a polypeptide of interest, at least one additional structural gene or a functional portion thereof encoding a polypeptide which confers a selectable trait, and, 5' of said DNA sequence, a control sequence ~~selected from the group consisting of~~ comprising a 5' untranslated region from a chloroplast gene and a promoter functional in said chloroplast ~~an entire promoter region from a gene capable of expression in the plant chloroplast to~~ provide for transcription initiation, and, downstream of said structural gene or a functional portion thereof, a termination region for termination of transcription, thereby providing expression of the coding sequence in the chloroplast of target plant, and chloroplast DNA sequences flanking the expression cassette to facilitate stable integration of the expression cassette into the chloroplast genome by homologous recombination.

22. (Currently amended) The expression cassette of claim 21 wherein the control sequences comprise a promoter functional in said chloroplast, and a transcription and translation terminator sequences.

23. (Previously presented) The expression cassette of claim 21 wherein the chloroplast DNA sequences flank the 3' and 5' ends of the DNA sequence coding for the polypeptide of interest.

24. (Previously presented) The expression cassette of claim 22 wherein the transcription and translation termination sequences comprises a 3' inverted repeat region of a chloroplast gene functional to stabilize the RNA of the heterologous DNA sequence.

25. (Previously presented) The expression cassette of claim 22 which comprises, associated therewith, restriction sites to facilitate insertion of a heterologous DNA sequence encoding a polypeptide of interest into the cassette.

26. (Previously presented) The expression cassette of claim 22 wherein the promoter is an inducible promoter.

27. (Previously presented) The expression cassette of claim 22 which comprises multiple promoters inserted in tandem 5' of the heterologous DNA sequence coding for a polypeptide of interest.

28. (Previously presented) The expression cassette of claim 27 comprising a double *psbA* promoter.

29. (Currently amended) The expression cassette of claim 22 wherein the promoter is selected from the group consisting of the *psbA* promoter, the *atpB* promoter, and ~~the~~ an rRNA promoter.

30. (Previously presented) The expression cassette of claim 22 wherein the promoter is selected from the group consisting of a constitutive promoter, a regulatable promoter and an inducible promoter.

31. (Previously presented) A chloroplast expression vector comprising as operably joined components,

(a) a promoter functional in a chloroplast, a DNA sequence comprising a plurality of cloning sites,

(b) a transcriptional termination region, and

(c) chloroplast DNA sequences flanking (a) wherein said chloroplast DNA sequences facilitate stable integration of the expression vector into the chloroplast genome wherein one cloning site is capable of incorporating a heterologous DNA sequence encoding a polypeptide of interest and another cloning site is capable of

incorporating one additional structural gene or a functional portion thereof encoding a polypeptide which confers a selectable trait, said expression vector further comprising, inserted into said cloning site in reading frame with said promoter, at least one additional structural gene or functional portion thereof encoding a polypeptide which confers a selectable trait.

32. (Previously presented) A stably transformed plant chloroplast comprising a DNA construct comprising, as operably joined components, a promoter functional in said chloroplast, a heterologous DNA sequence encoding a polypeptide of interest, at least one additional structural gene or a functional portion thereof encoding a polyupeptide which confers a selectable trait, wherein transcription of said DNA sequence is regulated by said promoter, a transcriptional termination region and chloroplast DNA sequences flanking the expression cassette to facilitate stable integration of the expression cassette into the chloroplast genome by homologous recombination.

33. (Previously presented) A new chloroplast according to claim 32, wherein the plant is a higher plant.

34. (Currently amended) A plant chloroplast expression vector which comprises an expression cassette comprising operably joined, a heterologous DNA sequence coding for a polypeptide of interest, at least one additional structural gene or functional portion thereof encoding a polypeptide which confers a selectable trait, and, upstream of said DNA sequence, a promoter functional in said chloroplast ~~an entire promoter region from a gene capable of expression in the plant chloroplast~~ to provide for initiation, and, downstream of said structural gene or a functional portion thereof, a termination region for termination of transcription to provide for expression of the coding sequence in the chloroplast of the target plant, and chloroplast DNA sequences flanking the expression cassette to facilitate stable integration of the expression cassette into the chloroplast genome by homologous recombination.

35. (Previously presented) The chloroplast expression vector of claim 31, wherein the additional structural gene or a functional portion thereof encoding a polypeptide of interest is a foreign gene, a native regulatable gene, a synthetic gene, or a mutant native gene.

36. (Previously presented) The expression cassette of claim 22, wherein the promoter is selected from the group consisting of the *psbA*, the *rbcL*, the *atpB* ~~or~~ and the an *rRNA* promoter.

37. (Previously presented) The expression cassette of claim 22, which comprises an enhancer sequence in addition to the promoter.

38. (Previously presented) A chloroplast expression vector comprising as operably joined components,

(a) a promoter functional in a chloroplast, a DNA sequence comprising a plurality of cloning sites, a transcriptional termination region, and

(b) chloroplast DNA sequences flanking (a) wherein said chloroplast DNA sequences facilitate stable integration of the expression vector into the chloroplast genome wherein one said cloning site is capable of incorporating a heterologous DNA sequence encoding a polypeptide of interest and another said cloning site is capable of incorporating one additional structural gene or a functional portion thereof encoding a polypeptide which confers a selectable trait, wherein said chloroplast expression vector further comprises a heterologous DNA sequence encoding a polypeptide of interest operably linked to the components in (a).

39. (cancelled)

40. (Currently amended) The expression cassette of Claim 39 21 wherein said 5' untranslated region is taken from a gene wherein expression is regulatable by light, so as to confer light regulatable expression of said heterologous DNA sequence.